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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : George A. Provost
Serial No. : 08/868,762
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Application for Reissue of U.S. Patent No. 5,315,740
Issued : May 31, 1994

Art Unit : 3507
Examiner : V. Sakran

Title : HOOK FOR HOOK AND LOOP FASTENERS

Box Reissue Patent Application

Commissioner for Patents

Washington, D.C. 20231

Declaration and Petition of George A. Provost

Pursuant to 35 U.S.C. 251 and

37 C.F.R. 1.171 et seq.

Sir:

I, George A. Provost, declare that I verily believe that I am the original, first and sole inventor of the subject matter which is described and claimed in a reissue application for Patent No. 5,315,740, issued May 31, 1994; that I have reviewed and understand the contents of the above-identified reissue application, including its specification and claims; that I acknowledge the duty to disclose all information of which I am aware which is material to the examination of this reissue application in accordance with Title 37, Code of Federal Regulation (C.F.R.), 1.56(a); that the aforesaid patent is partly inoperative by reason of my claiming more than I had a right to claim in the patent, and that said partial inoperativeness is a result of error which arose without any deceptive intention.

The reissue application is attached hereto, with additions to be made by reissue underlined and deletions to be made by reissue bracketed.

CERTIFICATE OF DELIVERY BY HAND

I hereby certify that this correspondence is being delivered by hand on the date indicated below and is addressed to the Commissioner for Patents, P.O. Box 2327, Arlington, VA 22202.

3/5/03
Date of Delivery

D. Barrack
Signature

D. Barrack
Typed or Printed Name of Person Signing Certificate

As required by 37 C.F.R. 1.171, an order for a title report is enclosed. Also enclosed is an offer to surrender the original patent pursuant to 37 C.F.R. 1.178, and an assent to this reissue application by the assignee, Velcro Industries, B.V., pursuant to 37 C.F.R. 1.172.

The reasons which form the basis for this reissue application, and the resulting partial inoperativeness of the patent, can be summarized as follows:

U.S. Patent No. 5,315,740, for which reissue is applied, is a subject of Interference No. 103,718. On or about March 17, 1997, in the course of a prior art search related to the interference, U.S. Patent No. 4,999,067 to Erb, et al. came to the attention of an attorney of Fish & Richardson, P.C., which is counsel for the assignee of the subject patent. Neither I nor my attorney were aware of the Erb, et al. patent and its pertinence to certain of the claims of the subject patent when prosecuting the original patent application. Upon review of the Erb, et al. patent, it appears that the subject matter of claims 1-8 of the subject patent are either anticipated under Section 102 or made obvious under Section 103 of Title 35, United States Code by the Erb, et al. patent, rendering these claims inoperable.

The Erb, et al. patent, which is cited in an Information Disclosure Statement accompanying the reissue application, discloses a method of making a hermaphrodite hook and loop fastener by first injection molding a plurality of thin, flat, hook ribbons. Each hook ribbon has a row of hooks in the plane of the ribbon and extending from one edge of the ribbon. A plurality of the hook ribbons are then positioned, side by side, on a separate substrate such that their hooks are oriented upstanding. Mounting projections on the bottom edges of the hook ribbons are then bonded to the substrate. The Erb, et al. patent, at column 7, Example 1, discloses hook dimensions which appear to render claims 1-8 of the subject patent inoperable. In particular, Example 1 discloses a hook thickness U of about 0.004 inches, a hook width B' of about 0.024 inches, and a dependency of hook head C' of about 0.019 inches. These dimensions provide a hook displacement volume of about 1.8×10^{-6} cubic inches.

In the reissue application, claims 1-8 are deleted, and claims 9-15 are unchanged. New claims 16-29 are presented for the first time in the reissue application. Each of claims 16-29 recites all the limitations that are recited in at least one of the claims of the subject patent, and recites additional features which distinguish over the Erb, et al. patent. The additional limitations in claims 16-29, beyond what was recited in the claims of the subject patent, are

found in the specification and claims of the subject patent. The specification includes the disclosure of U.S. Patent No. 4,984,339, which is specifically incorporated by reference in the subject patent at column 4, lines 19-23:

"FIG. 4 shows a cross section of a plastic molded hook, formed by **plastic molding techniques in desired shapes as disclosed in U.S. Patent No. 4,984,339** assigned to the owner of the instant invention and **incorporated by reference herein**." (emphasis added).

A copy of Patent No. 4,984,339 is attached hereto as exhibit A. Claims 16-29 do not add any new matter.

New claims 16-19 are the only independent claims in the reissue application. Claims 16, 18 and 19 each recite a hook product having a "multiplicity of hooks in adjacent rows and extending from a common integral planar base," wherein the stem of each hook is "connected at its lower end to the base by being molded integrally with the base." This feature distinguishes over the Erb, et al. patent. The hook product having adjacent rows of hooks that is disclosed in the Erb, et al. patent does not have a common integral planar base with hook stems being molded integrally to the base, as required by claims 16, 18 and 19, but rather is formed by joining separately molded hook ribbons to a separate substrate.

Claim 17 recites a tapered hook shape, which is not disclosed by the Erb, et al. patent. In addition, claim 17 recites a "multiplicity of plastic hooks being in adjacent rows," "hooks of the multiplicity of hooks comprising a planar base member intimately engaging a tapered base, by being molded therewith," and "a common integral planar base . . . being formed by base members of all the multiplicity of plastic hooks." These features also distinguish over the Erb, et al patent.

Claim 16 includes all the limitations recited in claim 1 in the context of a plastic hook product for a hook and loop fastening system having hooks sized and shaped to be capable of engaging loops of a loop product with a pile height of approximately 0.04 inches or less, the hook product comprising a multiplicity of hooks in adjacent rows extending from a common integral planar base, each of the multiplicity of hooks comprising a stem connected at its lower end to the base by being molded integrally with the base. Support for the recitation of "A plastic hook product for a hook and loop fastening system" is found in the specification of the subject patent at column 6, line 39:

". . . advanced hook products;"

at column 6, line 40,

". . . plastic molded hooks;"

and in claim 1,

"A hook for a hook and loop fastening system . . . ."

Support for "having hooks sized and shaped to be capable of engaging loops of a loop product with a pile height of approximately 0.04 inches or less" is found in the specification at column 2, lines 53-54:

". . . in which the size and shape of the hook is especially suited to low level loops;"

at column 5, lines 43-46,

". . . hooks engaged in a low profile loop closure system . . . having loop height of approximately 0.040 inches;"

and at column 6, lines 40-43,

". . . plastic molded hooks . . . engage especially well in loops with a pile height of less than 0.025 inches."

Support for "the hook product comprising a multiplicity of hooks in adjacent rows extending from a common integral planar base" is found in claim 13:

". . . a multiplicity of hooks onto and extending from a common integral planar base;"

in claim 14

". . . adjacent rows of hooks;"

and in Fig. 23 of Patent No. 4,984,339, which is shown in Exhibit A attached hereto. Support for "a stem connected at its lower end to the base" can be found in claim 1 of the subject patent, at column 6, line 54:

". . . a stem connected at its lower end to the base . . . ."

Support for "by being molded integrally with the base" is found in the specification of the subject patent:

"A plastic **molded** hook . . ." (Abstract);

"This invention relates . . . particularly to plastic **molded** hooks intended for use with low pile loops." (column 1, lines 5-7)

"Fig. 4 shows a cross section of a plastic **molded** hook, formed by plastic molding techniques in desired shapes as disclosed in U.S. Patent No. 4,984,339 . . . incorporated by reference herein." (column 4, lines 19-23);

". . . **molded** hook . . ." (column 4, lines 35-36); and

". . . the **molding process** for making that hook [shape of U.S. Patent No. 4,984,339] is easily adjusted . . . to produce hooks in the preferred range of displacement . . ." (column 6, lines 6-7);

and in Figs. 11-16 of Patent No. 4,984,339, which illustrate a hook 20 being molded integrally with a contiguous surface of planar base member 24. The molding process is described at column 6, lines 7-9 of Patent No. 4,984,339:

"FIG. 11 shows a hook 20 filling a hook cavity 46 in the periphery 48 of a molding roller 50 with base member 24 in contact with the periphery 48. Once the hook (and base member) has cooled sufficiently to . . . to be sufficiently resilient to return to its desired shape after being pulled longitudinally from the mold . . . the base member is pulled progressively away from the periphery of the molding roll and the hook is pulled progressively from the mold as shown sequentially in FIGS. 12 through 15 until it clears the cavity and springs back to the desired shape as shown in FIG. 16.1"

Support for the remainder of claim 16, from line 9 onwards, is found in claim 1 of the subject patent, starting at column 6, lines 54-55, with:

"the stem having an outer side and an inner side . . . "

to the end of claim 1.

Claim 17 includes all the limitations recited in claim 9 in the context of a plastic hook product for a hook and loop fastener, the hook product having a multiplicity of plastic hooks sized and shaped to be capable of engaging loops of a loop product with a pile height of approximately 0.04 inches or less, hooks of the multiplicity of hooks each comprising a planar base member intimately engaging a tapered base portion, by being molded therewith, and extending there from to join, in a transition region, a tapered hook portion, the multiplicity of plastic hooks being in adjacent rows, a common integral planar base being formed by base

members of all of the multiplicity of plastic hooks. The remainder of claim 17, lines 11-43 inclusive, is identical to claim 9, beginning in the subject patent at column 7, line 54 ("tapered hook portion . . ."), to the end of claim 9.

Support for the above-recited limitations is found in claim 9 of the subject patent, and in the specification and other claims of the subject patent and in Patent No. 4,984,339. Specific support for "In a plastic hook product for a hook and loop fastener" is found in the specification of the subject patent at column 6, line 39:

". . . advanced hook products;"

at column 6, line 40,

". . . plastic molded hooks;"

and in claim 9,

"In a hook for a hook and loop faster . . . ."

Support for "the hook product having a multiplicity of plastic hooks" is found in claim 13:

". . . a multiplicity of hooks . . . ."

Support for "sized and shaped to be capable of engaging loops of a loop product with a pile height of approximately 0.04 inches or less" is found in the specification at column 2, lines 53-54:

". . . in which the size and shape of the hook is especially suited to low level loops;"

at column 5, lines 43-46,

". . . hooks engaged in a low profile loop closure system . . . having loop height of approximately 0.040 inches;"

and at column 6, lines 40-43,

". . . plastic molded hooks . . . engage especially well in loops with a pile height of less than 0.025 inches."

Support for "hooks of the multiplicity of hooks each having a profile defined by . . . a planar base member intimately engaging a tapered base portion" is found in claim 9 at column 7, lines 49-53. Support for "by being molded therewith" is found in the specification of the subject patent:

"A plastic **molded** hook . . ." (Abstract);

"This invention relates . . . particularly to plastic **molded** hooks intended for use with low pile loops." (column 1, lines 5-7)

"Fig. 4 shows a cross section of a plastic **molded** hook, formed by plastic molding techniques in desired shapes as disclosed in U.S. Patent No. 4,984,339 . . . incorporated by reference herein." (column 4, lines 19-23);

". . . **molded** hook . . ." (column 4, lines 35-36); and

". . . the **molding process** for making that hook [shape of U.S. Patent No. 4,984,339] is easily adjusted . . . to produce hooks in the preferred range of displacement . . ." (column 6, lines 6-7);

and in Figs. 11-16 of Patent No. 4,984,339, which illustrate a hook 20 being molded integrally with a contiguous surface of planar base member 24. The molding process is described at column 6, lines 7-35 of Patent No. 4,984,339:

"FIG. 11 shows a hook 20 filling a hook cavity 46 in the periphery 48 of a molding roller 50 with base member 24 in contact with the periphery 48. . . the base member is pulled progressively away from the periphery of the molding roll and the hook is pulled progressively from the mold as shown sequentially in FIGS. 12 through 15 until it clears the cavity and springs back to the desired shape as shown in FIG. 16."

Support for the remainder of claim 17, lines 10-41 inclusive, is found in claim 9, beginning in the subject patent at column 7, line 53 ("and extending there from to join . . ."), to the end of claim 9 at column 8, line 31. In the last paragraph of claim 17, support for "the multiplicity of plastic hooks being in adjacent rows" is found in claim 14:

". . . the multiplicity of hooks are aligned in a given direction so that adjacent rows of hooks;"

and in Fig. 23 of Patent No. 4,984,339. Support for "a common integral planar base of said hook product being formed of all the multiplicity of plastic hooks" is found in the subject patent at claim 13:

". . . a multiplicity of hooks onto and extending from a common integral planar base;"

and in Fig. 23 of Patent No. 4,984,339, which is reproduced in Exhibit A.

Claim 18 includes all the limitations of claim 16, the support for which is discussed above, and also recites the "multiplicity of plastic hooks in adjacent rows facing in opposite directions." Support is found in claim 14 of the subject patent, at column 8, lines 49-51:

". . . the multiplicity of hooks are aligned in a given direction so that adjacent rows of hooks face in opposite directions."

Claim 19 includes all of the limitations of claim 16, and also recites the hook product being produced by the method comprising integrally molding the planar base and hooks using a molding roller having open-ended but otherwise closed hook-shaped mold cavities in its periphery, including filling the mold cavities with the planar base in contact with the periphery, and pulling the planar base progressively away from the periphery of the molding roller and progressively pulling the hooks longitudinally from the mold cavities. Support for these limitations can be found in Patent No. 4,984,339, at Figs. 11-15 and at column 5, line 68 through column 6, line 34:

". . . hook which is shaped and dimensioned to be readily pulled from an open ended but otherwise closed hook shaped cavity . . . FIGS. 11 through 16 illustrate this removal process step-by-step.

"FIG. 11 shows a hook 20 filling a hook cavity 46 in the periphery 48 of a molding roller 50 with base member 24 in contact with the periphery 48. Once the hook (and base member) has cooled sufficiently to . . . to be sufficiently resilient to return to its desired shape after being pulled longitudinally from the mold . . . the base member is pulled progressively away from the periphery of the molding roll and the hook is pulled progressively from the mold as shown sequentially in FIGS. 12 through 15 until it clears the cavity and springs back to the desired shape as shown in FIG. 16."

Claim 20 recites, in the context of the hook product of any of claims 16-19, that the displacement volume is less than 4×10^{-6} cubic inches. This limitation is in the last two lines of claim 5 of the subject patent.

Claims 21, 22, and 23 recite, in the context of the hook product of any of claims 16-19, limitations respectively found in claims 2, 3, and 4 of the subject patent.

Claims 24 and 25 recite, in the context of claim 17, limitations respectively found in claims 10 and 11 of the subject patent.

In the context of any of claims 16, 18 or 19, claim 26 recites that the multiplicity of hooks face in the same direction. Support for this limitation is found at claim 15 of the subject patent:

". . . all hooks face in the same direction."

Claim 27, also in the context of any of claims 16, 18 or 19, recites that the hooks have differing orientations to provide multidirectional shear operation. This limitation can be found in Patent No. 4,984,339, at column 8, lines 55-56:

". . . the hooks may have differing orientations to provide multidirectional shear operation."

Claim 28 recites that the method of producing the hook product of claim 19 further comprises, prior to pulling, cooling each of the hooks sufficiently to retain its shape without the aid of its mold cavity and to be sufficiently resilient to return to its desired shape after being pulled longitudinally from its mold cavity while still being flexible enough to permit such removal without destructive stresses being reached in the hooks. Support can be found in Patent No. 4,984,339 at column 8, lines 10-30:

"Once the hook (and base member) has cooled sufficiently to retain its shape without the aid of the cavity and to be sufficiently resilient to return to its desired shape after being pulled longitudinally from the mold while still being flexible enough to permit such removal without destructive stresses being reached in the hook . . . ."

Claim 29 recites, in the context of the hook product of claim 19, each hook being tapered and including concave fillets where the stem is connected to the base, the taper and the concave fillets coupled with the generally arcuate shape of the crook portion providing removal easing clearances facilitating the removal of the hook from its mold cavity by pulling longitudinally from its mold cavity. Support for this limitation is found in Patent No. 4,984,339 at column 8, lines 37-42:

". . . the choice of taper of the hook and the concave shape of the fillets coupled with the generally arcuate shape of the hook portion contribute to providing removal easing clearances facilitating the removal of the hook;"

and at column 6, lines 12-13

". . . pulled longitudinally from the mold . . . ."

I hereby appoint the following attorneys and/or agents to prosecute this application and to transact all business in the Patent and Trademark Office connected therewith: John N. Williams, Reg. No. 18,948; Jonathan J. Wainer, Reg. No. 36,712; Willis M. Ertman, Reg. No. 18,658; William E. Booth, Reg. No. 28,933; John W. Freeman, Reg. No. 29,066; Timothy A. French, Reg. No. 30,175; Alan H. Gordon, Reg. No. 26,168; John F. Land, Reg. No. 29,554; John B. Pegram, Reg. No. 25,198; Rene D. Tegtmeyer, Reg. No. 33,567; Hans R. Troesch, Reg. No. 36,950; Dorothy P. Whelan, Reg. No. 33,814; Charles C. Winchester, Reg. No. 21,040.

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I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patents issued thereon.

Date: 2/25/03

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